

In measuring the timing, duration and amplitude of individual price changes during price cycles Dr. Mills has secured eight measures descriptive of the movements of each of 209 individual price series during each of the ten cycles which occurred between 1890 and 1925. These measures are:

- Date of low point preceding price revival (expressed as a deviation in months from the date of the low of the wholesale price index of the Bureau of Labor Statistics)
- Duration of rise during revival and prosperity
- Percentage of rise during revival and prosperity
- Date of high point preceding recession (expressed as a deviation in months from the date of the high of the wholesale price index of the Bureau of Labor Statistics)
- Duration of decline during recession and depression
- Percentage of decline during recession and depression
- Duration of cycle
- Amplitude of cyclical movement

Significant Relationships Observed

A number of significant relationships among the measures of cyclical price movements have been observed by Dr. Mills, who lists them as follows:

a. The commodities which rise first on revival are subject, in general, to wider cyclical fluctuations than are the commodities which lag on revival. Similarly, the commodities which decline first on recession are marked by wider fluctuations than are those which lag.

b. The commodities which rise first during revival tend to decline first on recession, but the correlation between the sequence of change on revival and the sequence of change on recession is far from perfect.

c. When measures relating to individual cycles are paired, it is found that the correlation between the timing of recession and the timing of revival on the next succeeding turn is significantly higher than the correlation between the timing of revival and the timing of the following recession. The order of price recession in a given cycle exercises a stronger influence upon the order of the succeeding revival than the order of revival exercises upon the order of the succeeding recession. There is evidence in both cases, however, of a significant relationship. Although each phase of a price cycle bears the imprint of novel factors, there are definite bonds which tie it to the phase that has preceded it.

d. There is a clear tendency for the sequence of revival to follow a common pattern during different cycles. The same tendency is observed in studying the sequence of recession in different cycles. The common pattern is slightly more in evidence for the data relating to recession than in the figures measuring the time of revival. Other evidence bears out this suggestion that the consistency of price movements during different periods of recession is greater than it is during revival.

True Economic Regularities Seen

"The evidence upon which the preceding statements are based," says Dr. Mills, "is of considerable general significance in showing that there are true economic regularities in the price movements which accompany cycles in general business."

Publications of the National Bureau of Economic Research

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NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.

474 West 24th Street, New York

An Organization
for Impartial
Investigation

NEWS-BULLETIN

of the

National Bureau of Economic Research, Inc.

No. 28

474 West 24th Street, New York City

April 23, 1928

To Find Facts
Divested of
Propaganda

Survey of Recent Economic Changes

Scope of Inquiry Defined and Personnel Announced

THE Survey of Recent Economic Changes in the United States which has been undertaken by the National Bureau of Economic Research, may be considered as a continuation under the same auspices and on a somewhat larger scale of the survey entitled "Business Cycles and Unemployment," made by the National Bureau in 1922 for the standing committee¹ of President Harding's Unemployment Conference.

The earlier study was sponsored by a special committee under the chairmanship of Mr. Owen D. Young.²

A similar committee³ of the Conference stands sponsor for the present inquiry and is to draw its conclusions and practical recommendations from the fact-finding survey made by the National Bureau in cooperation with the best insight and knowledge of various qualified agencies and individuals. Among the cooperating organizations are the Social Science Research Council, the Bureau of Railway Economics, the Personnel Research Federation, the Institute of Economics, the American Engineering Council, and various Departments of the Government.

The funds for the fact-finding studies have been

furnished by grants to the Conference from the Carnegie Corporation of New York and the Laura Spelman Rockefeller Memorial.

The time schedule calls for publication in the second quarter of 1929.

In addition to the research staff of the National Bureau, headed by Dr. Edwin F. Gay and Dr. Wesley C. Mitchell, directors of research, the collaborating editors include L. P. Alford, vice president, American Engineering Council; Dr. W. Randolph Burgess, assistant Federal Reserve Agent, New York; Melvin T. Copeland, Professor of Marketing and Director Bureau of Business Research, Harvard University; William J. Cunningham, J. J. Hill Professor of Transportation, Harvard University; Henry S. Dennison, president, Dennison Manufacturing Company; Dr. John M. Gries, chief, Division of Building and Housing, Department of Commerce; Dexter S. Kimball, Dean of the College of Engineering, Cornell University; Dr. Edwin G. Nourse, chief, Agricultural Division, Institute of Economics; Irwin H. Schell, Assistant Professor of Industrial Management, Massachusetts Institute of Technology; Oliver M. W. Sprague, Converse Professor of Banking and Finance, Harvard University; Dr. Morris A. Copeland, Cornell University; E. S. Gregg, Chief Statistician, Western Electric Company; and Dr. J. Harvey Rogers, Professor of Economics, University of Missouri.

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Lamont and Woll Elected to Bureau's Board of Directors

MESSERS. THOMAS W. LAMONT, of J. P. Morgan and Company, and Matthew Woll, President of the International Photo-Engravers Union have been elected directors at large in the National Bureau of Economic Research, Inc., succeeding respectively Dwight W. Morrow, and John P. Frey.

Both Mr. Lamont and Mr. Woll have been interested for a number of years in the work of the National Bureau as an impartial fact-finding agency, Mr. Lamont having been since 1923 a trustee of The Economic Foundation, a trust which was organized to receive endowments for impartial research, primarily for the National Bureau, and Mr. Woll having served on the Committee of President Harding's Conference on Unemployment, under whose auspices the National Bureau made the investigation, the results of which were published in 1923 under the title *Business Cycles and Unemployment*.

¹Standing Committee: Herbert Hoover, chairman; Julius H. Barnes, William M. Butler, Edgar E. Clark, Joseph H. Defrees, Mortimer Fleishacker, C. M. Markham, E. M. Poston, Ida M. Tarbell, Ernest T. Trigg, Mary van Kleeck, Matthew Woll, Arthur Woods, Clarence M. Woolley, Andrew J. Peters.

²Committee on Business Cycles and Unemployment: Owen D. Young, chairman; Joseph H. Defrees, Mary van Kleeck, Matthew Woll, Clarence M. Woolley.

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THE National Bureau of Economic Research, Incorporated, was organized in 1920 in response to a growing demand for exact and impartial determinations of the facts bearing upon economic, social, and industrial problems.

The Bureau seeks not merely to determine facts, but to determine them under such auspices as shall make its findings carry conviction to Liberals and Conservatives alike. It deals only with topics of national importance which are susceptible of quantitative treatment.

By issuing its findings in the form of fact reports, entirely divorced from propaganda, the Bureau hopes to aid all thoughtful men, however divergent their views of public policy, to base their discussions upon objective knowledge as distinguished from subjective opinion.

No report of the Research staff may be published without the approval of the Board of Directors. Rigid provisions guard the Bureau from becoming a source of profit to its members, directors or officers, and from becoming an agency for propaganda.

The Bureau assumes no obligation to present or future contributors, except to determine and publish facts.

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Scope of Survey of Recent Economic Changes Outlined

(Continued from Page 1)

An outline of the project prepared by the National Bureau and approved by the Sponsoring Committee is as follows:

Introduction—(Edwin F. Gay)

Preliminary survey of economic situation 1919-1927. Similarities and dissimilarities between this period and its predecessors. Contrast between courses of development in the United States and other countries.

I. Changes in Consumption and the Standard of Living (Leo Wolman)

Evidences and measures of changing standards as shown by mortality rates of industrial workers, housing conditions and rent, food consumption, education, changes in general consumption, size of family, size of professional and commercial classes. Effect of changing standards of living on business prosperity.

II. Industry.

1. Technical Changes (L. P. Alford)
 - Power utilization
 - Utilization of manufacturing machinery
 - Utilization of material handling equipment
 - Improvements in physical working conditions
 - Development of materials for manufacture. Research.
 - Development of manufacturing processes
 - Utilization of wastes.
2. Changes in New and Old Industries (Dexter S. Kimball.)
 - Radio, motion pictures, rayon, tractors and combines. Home mechanical equipment, electrical refrigeration, aviation.
 - Coal, petroleum, iron, steel, textiles, leather, boots and shoes, etc.
3. Construction (John M. Gries)
 - Construction and general economic conditions.
 - Demand for construction. Financing.
 - Construction costs.
4. Changes in Physical Organization (Willard L. Thorp)
 - Size of the industrial unit. Changes in industrial structure. Relationship between size and stability. Relationship between size and financial success. Recent geographical shifts.

III. Transportation

1. Railroads—(Wm. J. Cunningham)—Administrative and technical discussion of way, structures, equipment. Miscellaneous facilities. Property investment. Ton miles and passenger miles. Technical efficiency. Operating ratio, income factors, return on investment. Wage regulation. Relations of carriers and public. Quality and effectiveness of service. Their influence on inventories, hand-to-mouth buying and release of capital. Effect of capital expenditures and equipment purchases on general business. Regulation since 1920. Competition of waterways, motor vehicles and aeroplanes with railroads.
2. Shipping. (E. S. Gregg)

IV. Marketing (Melvin T. Copeland)

Changes in demand for consumers' goods.
Changes in demand for industrial goods.
Changes in distribution of consumers'

Trend Toward Stability Revealed in New Report on the Behavior of Prices

THAT general business is becoming more stable and that the speculative element in wholesale commodity transactions is becoming less important, is indicated in the findings of an exhaustive investigation of the movements of some 400 commodities recently completed by the National Bureau of Economic Research.

There is some evidence that individual commodity prices in the United States have been more variable than corresponding prices in European countries, a difference which was especially marked before the war. Yet even before the war the variability of American prices was tending to become less pronounced. The war brought a sharp check to this tendency. Highly unstable prices and highly speculative conditions prevailed between 1915 and 1921. Beginning with 1922, the National Bureau's analysis shows, there has been a renewal of the trend toward greater stability. This movement has been slow in getting under way, but in the last several years it has brought the country back substantially to pre-war conditions in respect to price variability.

Report by Frederick C. Mills

The report from which these conclusions are taken presents the first findings of a comprehensive investigation of the behavior of prices upon which Dr. Frederick C. Mills, of the National Bureau's research staff, and his assistants, under the general direction of Dr. Edwin F. Gay and Dr. Wesley C. Mitchell, directors of research of the National Bureau, have been engaged for over two years. The period covered is from 1890 to 1927 and in the analysis of price movements, Dr. Mills was obliged to develop several new measures which will be of interest to all statisticians engaged in the study of price series.

The present report entitled *The Behavior of Prices* gives the most detailed information ever assembled concerning the behavior of the prices of individual commodities. Currently published index numbers of prices, it is explained, are averages which give the business man little information about specific commodities in which he may be interested. Dr. Mills' report gives information concerning the violence of the price movements of individual commodities, the trends which have prevailed in the prices of these commodities, the order of their change in price during different phases of the business cycles, and the magnitude of their price fluctuation during business cycles.

Cycles Approach Common Pattern

Definite cycles in the movements of commodity prices are revealed in this study of price behavior. Each successive cycle of prices, Dr. Mills finds, is not a unique event. Although each recession (and each revival) contain novel features there is a clear tendency for the general order of price movements at such times to follow a common pattern.

goods. Cooperative marketing. Merchandising. Sales promotion. Advertising. Hand-to-mouth buying. Installment buying. Shifts in rural markets. Pricing policies.

V. Labor (Leo Wolman)

Supply of labor since 1920, immigration and emigration, falling death rate and labor supply, new labor supplies, surpluses of labor. Wages, hours and labor cost. Employment and unemployment. Productivity of labor. Organization of labor. Stability of labor's purchasing power. Income from insurance. Strikes and lockouts. Policies of organized labor.

VI. Management (H. S. Dennison and I. H. Schell)

Labor productivity. Production management. Changes in management methods. Management in distribution. Management in accounting and finance. Merchandising management. General management.

VII. Agriculture (Edwin G. Nourse)

Peculiar position of agriculture in the United States and other countries since the war. Prices of agricultural and non-agricultural products. Process of adjustment of agriculture to post-war industry. Export and import position of United States agriculture. Agricultural supplies, demand, and prices in the domestic market. Prospects of reduced production costs through technological developments. Lowered production and distribution costs through changed economic organization. Agricultural credits. Outlook for abundant and economically produced supply of food and raw materials from American farms. Probable numbers, consumption requirements and economic stability of farmer group.

VIII. Price Structure (Frederick C. Mills)

Movements of the level of wholesale prices and their relations to business conditions. Change in relations among wholesale commodity prices. Measurement of internal stability of the price system. Price movements in important commodity groups. Comparison of post-war price structure with pre-war structure.

IX. Profits, Interest and Wages (Morris T. Copeland)

Fluctuations in the major income streams and in their total.
Current consumption and savings.

X. Capital Accumulation and Investment (W. Randolph Burgess)

Records of physical extensions of industrial equipment, public works, buildings.
Financial records of investments.
Organization for safeguarding investments.

XI. Foreign Markets and Loans (J. Harvey Rogers)

(With special reference to the American domestic situation)
American branch banks abroad.

XII. Money and Banking (O. M. W. Sprague)

Government finance. General decline in interest rates. Savings. Financial structure of business. Banking organization. Notable increase in volume of bank credit. Has decline in interest rates been due primarily to savings or bank credit? American banking position in relation to foreign money markets. Special problems presented by agricultural credit experience.

Conclusion (Wesley C. Mitchell)

Together with a brief reference to other less tangible factors, the conclusion deals mainly with the interrelation and evaluation of the chief elements in the problem surveyed under the above headings.